

### Abstract of the Disclosure

A system is described which provides bidirectional transport of data at different data rates for each direction over a shared medium. In one embodiment, the different data rates are accomplished using different modulation techniques. For example, in the downstream direction, quadrature amplitude modulation (QAM) 64 is used and in the upstream direction orthogonal frequency division multiplexing (OFDM) is used. The QAM 64 modulation provides for a higher number of bits per hertz in a transmission channel. By using QAM 64 modulation, down stream transmission rates on the order of 30 megabits per second (Mbps) in a 6 MHz channel can be achieved. A number of 6 MHz channels can be combined to provide for even higher data rates.